

Claims

1. Device for destruction-free inspection of a conveyor belt (1) made of elastomer material, having a carrying side for the goods to be conveyed, and a running side, as well as having an embedded strength support, whereby the conveyor belt moves, characterized in that a radiation source (4) emits rays in the direction of the belt surface, which rays are so energy-rich that they pass through the conveyor belt, whereby a process computer (15) evaluates the result of the irradiation test.
2. Device according to claim 1, characterized in that the radiation source (4) emits X-rays or gamma rays.
3. Device according to claim 1 or 2, characterized in that the radiation source (4) detects the entire width of the conveyor belt (1).
4. Device according to one of claims 1 to 3, characterized in that the radiation source (4) detects the carrying side in the material-free state.
5. Device according to one of claims 1 to 4, characterized in that the radiation source (4) is accommodated in a support

stand, particularly a transportable support stand (3), in particular within its upper part.

6. Device according to claim 5, characterized in that the support stand (3) is a four-sided support frame, whereby the conveyor belt (1) runs within the support frame, particularly within its lower region.
7. Device according to one of claims 1 to 6, characterized in that the radiation source (4) is coupled with a control device (12).
8. Device according to one of claims 1 to 7, characterized in that the radiation source (4) corresponds with a line sensor (5) with image processor that lies opposite, which is disposed below the running side.
9. Device according to claim 8 in combination with claim 5 or 6, characterized in that the line sensor (5) with image processor is disposed on the support stand (3).
10. Device according to one of claims 1 to 9, characterized in that the radiation source (4) corresponds with a defect marking system (13).

11. Device according to claim 10, characterized in that the defect marking system (13) is disposed laterally with regard to the conveyor belt (1), specifically in the region between the carrying side and the running side.
12. Device according to claim 10 or 11, characterized in that the defect marking system (13) is coupled with the control device (14).
13. Device according to one of claims 10 to 12, characterized in that the defect marking system (13) is disposed on the support stand (3).
14. Device according to one of claims 1 to 13, characterized in that
  - the entire conveyor belt (1) is divided into finite segments, whereby each segment is provided with a distinct address, so that segment marking occurs, whereby the detection of the address of the segment marking, in each instance, takes place without contact, by means of a first scanning unit; and that
  - the finite segments are delimited by a start marking (6), in each instance, whereby the detection of the

start marking, in each instance, also takes place without contact, by means of a second scanning unit.

15. Device according to claim 14, characterized in that the finite segments are divided at a distance of 10 to 500 m in length.
16. Device according to claim 14 or 15, characterized in that the address of the segment marking as well as the start marking (6) are located within the belt surface, particularly within the carrying side, in its edge region.
17. Device according to one of claims 14 to 16, characterized in that the address of the segment marking and the start marking (6) are separate marking systems.
18. Device according to claim 17, characterized in that the address of the segment marking is in the vicinity of the start marking (6).
19. Device according to one of claims 14 to 16, characterized in that the address of the segment marking and the start marking (6) form a uniform marking system.

20. Device according to one of claims 14 to 19, particularly in combination with claim 17 or 18, characterized in that the address of the segment marking is a transponder (8), whereby the first scanning unit comprises an antenna (9) and a transponder reader (11).
21. Device according to one of claims 14 to 19, characterized in that the address of the segment marking and/or the start marking (6) is formed by at least one notch, color strip, reflection zone, metal particle, or permanent magnet.
22. Device according to one of claims 14 to 19, characterized in that the address of the segment marking and/or the start marking (6) is a code, particularly under the aspect of mechanical, optical, magnetic, electrically conductive, or radioactive detection.
23. Device according to claim 22, characterized in that the code is a bar code or is structured similar to a bar code.
24. Device according to claim 22, characterized in that the code consists of small permanent magnets, particularly in the form of a serial arrangement.

25. Device according to one of claims 21 to 24, characterized in that the first and second scanning unit are a common detection system, particularly in the form of a read head (7).
26. Device according to one of claims 1 to 25, particularly in combination with one of claims 14 to 25, characterized in that it is provided with an encoder (10).
27. Device according to claim 26, characterized in that the encoder is driven by the conveyor belt (1) itself.
28. Device according to claim 26, characterized in that the encoder (10) stands in connection with a movable part of the conveyor that comprises the conveyor belt (1).
29. Device according to claim 28, characterized in that the encoder (10) is driven by way of the axle of a non-driven drum (2).
30. Device according to one of claims 1 to 29, characterized in that the process computer (15) is coupled at least with the radiation source (4), particularly with other device parts of the stated type.

31. Device according to claim 30, characterized in that the process computer (15) is coupled with the following device parts, namely with:

- the radiation source (4), particularly in combination with claim 7, by way of the control device (12);
- the line sensor (5) with image processor;
- the defect marking system (13), particularly in combination with claim 12, by way of the control device (14);
- the first and second scanning unit, as well as
- the encoder (10).

32. Device according to one of claims 1 to 31, characterized in that the process computer (15) is coupled with a monitor (16).

33. Device according to one of claims 1 to 32, characterized in that a radiation protection device is provided, which is particularly disposed on the support stand (3) or its immediate vicinity.